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Nineteen awards, given annually for innovative applications of artificial intelligence, will be presented by the American Association for Artificial Intelligence in July 1992 to a variety of companies, many of which have not previously been at the cutting edge of advanced technologies. In response to strategic challenges and rising demands for **customer** services, **Compaq** and Inference Corp. developed **Support Management Automated Reasoning Technology (SMART)**. The award-winning case-based system for online trouble-shooting allows its more than 100 users to match the characteristics of **customer** trouble calls with those of past cases. **Compaq** said SMART increased the percentage of cases resolved from 50% to 87% and produced labor savings that allowed development costs to be recovered in a year. A. C. Nielsen Co. won for Spotlight, a knowledge-based system that allows **customers** to understand the important points in large databases of point-of-sale scanner information. Spotlight reduced the firm's market analysis time from weeks to hours.

Full Text (888 words)*Copyright CW Communications/Inc. May 18, 1992*

Menlo Park, Calif.—Systems that boosted customer support effectiveness at Compaq Computer Corp. by 74%, reduced market analysis time at A. C. Nielsen Co. from weeks to hours and saved others millions of dollars in operating costs recently won awards from the American Association for Artificial Intelligence (AAAI).

The 19 awards, given annually for innovative applications of AI, will be presented in July to transportation, banking, consumer goods, manufacturing, petroleum, health care, travel, utility and software companies and government agencies, many of which "have not previously been at the cutting edge of advanced technologies," according to the AAAI.

To be chosen for an award, an application must be deployed and producing measurable benefits, the AAAI said.

One of Compaq's corporate objectives sounds a bit like a scout pledge: "The mission of the telephone support group is to...(be) accessible, responsive, enthusiastic, courteous, helpful and caring." Compounding those challenges are an expanding Compaq product line, falling prices and rising demands for customer service.

In response, Compaq and Inference Corp. in Los Angeles developed SMART—Support Management Automated Reasoning Technology—a case-based system for on-line troubleshooting. SMART allows its more than 100 users to match the characteristics of customer trouble calls with those of past cases. For example, a customer reporting "intermittent problems in a Compaq server on an Ethernet network resulting in lockup under high-traffic conditions" would cause SMART to search its database for cases with those characteristics.

Similar cases, with their suggested solutions, would then be displayed on the SMART screen with scores showing just how similar they are. For each matching case, SMART prompts the caller for additional information, such as network operating system. As more information is requested and supplied, the system makes new searches and provides more relevant cases, solutions and questions until the user is satisfied he has the answer.

Compaq said SMART increased the percentage of cases resolved from 50% to 87% and produced labor savings allowing development costs to be recovered in a year.

Compaq said the AI application avoids the knowledge acquisition bottleneck found in many knowledge-based systems because the SMART knowledge base grows automatically as users add cases.

IN THE SPOTLIGHT

Market research firm A. C. Nielsen won its award for Spotlight, a knowledge-based system that allows customers to understand what is important in huge databases of point-of-sale scanner information. Nielsen said Spotlight allows analyses to be done in minutes or a few hours that would have taken market analysts weeks to do in the traditional way using intuition and spreadsheet packages.

Northbrook, Ill.-based Nielsen stores have more than 1 terabyte of on-line data about packaged goods—sales volumes by product, store and week; information about price and distribution; and in-store data about displays, discounts, shelf placement and coupons. Spotlight applies "heuristic" techniques—those where precise statistical methods cannot be applied—to find patterns among the data and to find explanations for shifts in market share or sales volume.

Spotlight then applies rules for deciding which tables, graphs and text should present results. In a sample output, Spotlight constructed this printed explanation, which accompanied a bar chart showing coffee market share data: "Blend A gained the most share, up 1.2 points to 7.4. Share change explanation: Price decreased \$1.88, or 8.2%, to \$21.12."

According to Nielsen, it took 48 man-months over seven elapsed months to develop Spotlight, and the system returned its development costs in six months.

United HealthCare Corp. in Minneapolis replaced its table-driven Cobol system for evaluating medical claims—"saturated with rules and difficult to maintain"—with AdjudiPro, an expert system that emulates the behavior of highly trained medical analysts.

Built around the KES II expert system shell from Template Software, Inc. in Herndon, Va., AdjudiPro automates medical and nonmedical rules. It uses classifications in the medical analyst's "bible," an annual publication called the "Physicians' Current Procedural Terminology."


Developed at a cost of \$450,000, AdjudiPro is United HealthCare's first foray into AI. The company expects it to reduce the number of claims needing manual review by 30% to 40% and produce a 47% return on investment over six years.


Summarizing the 19 award winners, the AAAI said the range of organizations and applications using AI—which it broadly defines to include techniques such as expert systems, neural networks, fuzzy logic, machine vision and robotics—continues to grow.

The association also said the development of AI applications increasingly involves users and customers.

* THE WINNERS ARE...

The AAAI picked 19 winning AI applications, including the following:

*  AMERICAN EXPRESS CO.—for its knowledge-based system to help review accounts for credit risks and potential fraud. Estimated savings: at least \$1.4 million per year.

*  WHIRLPOOL CORP.—for its AI assistant to customer service representatives that helps troubleshoot problems coming in by telephone. Estimated savings: \$4 million to \$6 million annually.

*  XEROX CORP.—for an AI system that estimates costs in piece-part manufacturing. Estimated savings: \$20 million annually.

* A. C. NEILSON—for a knowledge-based system for filtering and distilling gigabytes of data from packaged goods sales scanners. Reduces analysis time from weeks to minutes.

* BELL COMMUNICATIONS RESEARCH, INC.—for Intelligent Code Inspection in C language environment, which uses expert knowledge to find bugs. Estimated annual savings in software inspection costs: \$1.7 million.

* UNITED HEALTHCARE CORP.—for its Claim Adjudication Review Expert system, which applies medical knowledge to evaluate health care claims. Goal: to reduce the number of claims needing manual review by 30% to 40%.

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